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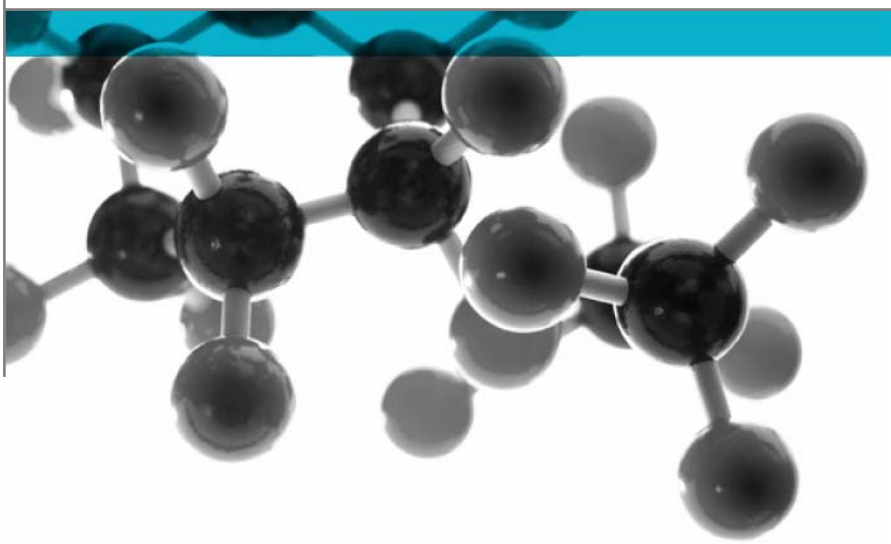
BS 476: Part 6: 1989+A1:2009



Method Of Test For
Fire Propagation For Products

A Report To: Contra Vision

Document Reference: 334870

Date: 13th November 2013

Issue No.: 1

Testing
Advising
Assuring

UKAS TESTING
0249

Executive Summary

Objective To determine the performance of the following product when tested in accordance with BS 476: Part 6: 1989+A1: 2009.

Generic Description	Product reference	Thickness / application rate	Weight per unit area or density
Self-adhesive perforated window film adhered to toughened glass substrate	"Contra Vision® *Performance*™"	6.16mm *	14.8kg/m^2 *
Individual components used to manufacture composite:			
Ply No.1 film (test face)	"Polymeric Calendered PVC"	90 microns	75g/m^2
Ply No.2 film	"Polymeric Calendered PVC"	90 microns	75g/m^2
Adhesive	Unable to provide	28g/m^2	Not stated
Substrate	"6mm Toughened"	6mm	14.61kg/m^2 *
***Determined by Exova Warringtonfire**			
Please see page 5 of this test report for the full description of the product tested			

Test Sponsor Contra Vision, Victoria House, 19-21 Ack Lane East, Bramhall, Stockport, Cheshire, SK7 2BE

Test Results:

Fire propagation index, I	**=**	**0.0**
Sub index, i_1	**=**	**0.0**
Sub index, i_2	**=**	**0.0**
Sub index, i_3	**=**	**0.0**

Date of Test 21st & 22nd November 2013

Signatories

Responsible Officer C. Meachin * Acting Technical Officer	Authorised S. Deeming * Operations Manager

* For and on behalf of **Exova Warringtonfire**.

Report Issued: 28th November 2013

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Test Details

Purpose of test

To determine the performance of a product when it is subjected to the conditions of the test specified in BS 476: Part 6: 1989+A1: 2009, "Fire tests on building materials and structures, method for fire propagation for products".

The test was performed in accordance with the procedure specified in BS 476: Part 6: 1989+A1: 2009, and this report should be read in conjunction with that British Standard.

Scope of test

BS 476: Part 6: 1989+A1: 2009 specifies a method of test, the result being expressed as a fire propagation index, that provides a comparative measure of the contribution to the growth of fire made by an essentially flat material, composite or assembly. It is primarily intended for the assessment of the performance of internal wall and ceiling linings.

Fire test study group/EGOLF

Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.

Instruction to test

The test was conducted on the 21st & 22nd November 2013 at the request of Contra Vision, the sponsor of the test.

Provision of test specimens

The specimens were supplied by the sponsor of the test. **Exova Warringtonfire** supplied the substrate and bonded the composite together. **Exova Warringtonfire** was not involved in any selection or sampling procedure.

Conditioning of specimens

The specimens for testing to BS 476: Part 6: 1989+A1: 2009 together with the specimens for testing to BS 476: Part 7: 1997 were received on the 18th November 2013.

Prior to the tests, all of the specimens were conditioned to constant mass at a temperature of 23 ± 2°C and a relative humidity of 50 ± 5%. One specimen from the total sample submitted for test was selected for constant mass verification.

Form in which the specimens were tested

Assembly - Fabrication of materials and/or composites that can contain air gaps. An air space was provided at the back of the product by testing over spacers of non-combustible insulation board 20 mm wide and 12.5mm thick.

Exposed face

The white film face of the specimens was exposed to the heating conditions of the test.

Description of Test Specimens

The description of the specimens given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

General description		Self-adhesive perforated window film adhered to toughened glass substrate
Trade name		"Contra Vision® *Performance*™"
Thickness of film		180 microns
Weight per unit area of film inclusive of adhesive		170g/m^2
Thickness of composite		6.16mm (determined by **Exova Warringtonfire**)
Weight per unit area of composite		14.8kg/m^2 (determined by **Exova Warringtonfire**)
Name of manufacturer		Contra Vision Supplies Ltd
Perforations	Diameter of holes	1.60mm
	Spacing between hole centres	2.40mm
Ply No.1 film (test face)	Generic type	Polyvinyl chloride (PVC)
	Product reference	"Polymeric Calendered PVC"
	Name of manufacturer	Renolit
	Colour	"White"
	Thickness	90 microns
	Weight per unit area	75g/m^2
	Flame retardant details	**See Note 1 below**
Ply No.2 film	Generic type	PVC
	Product reference	"Polymeric Calendered PVC"
	Name of manufacturer	Renolit
	Colour	"Black"
	Thickness	90 microns
	Weight per unit area	75g/m^2
	Flame retardant details	**See Note 1 below**
Adhesive	Generic type	Solvent acrylic
	Product reference	**See Note 1 below**
	Name of manufacturer	**See Note 2 below**
	Application rate	28g/m^2
	Application method	Transferred from coated release liner
	Flame retardant details	**See Note 1 below**
Substrate	Generic type	Toughened glass
	Product reference	"6mm Toughened"
	Name of supplier	KLG Glass (Chiwell)
	Colour reference	"Clear"
	Thickness	6mm
	Weight per unit area	14.61kg/m^2 (determined by **Exova Warringtonfire**)
	Flame retardant details	The substrate is inherently flame retardant
Brief description of manufacturing process		White and black layers (ply 1 and ply 2) of calendered PVC, laminated together with heat & pressure, adhesive coated and then perforated.

Note 1 - The sponsor was unable to provide this information.

Note 2 - The sponsor was unwilling to provide this information.

Test Results

Results

A total of three specimens were tested. The laboratory record sheet relating to each of the test specimens is appended to this report (refer to Tables 1, 2 and 3).

Throughout the test on each specimen careful observation was made of the product's behaviour within the apparatus and special note was taken of any of the phenomena listed in clause 9.2 of the Standard. None of the listed phenomena was observed and the test results on all three specimens tested were valid.

The following test results were obtained for the product.

Fire propagation index, I	**=**	**0.0**
Sub index, i_1	**=**	**0.0**
Sub index, i_2	**=**	**0.0**
Sub index, i_3	**=**	**0.0**

NOTE: If a suffix 'R' is included in the above fire propagation index, I, then this indicates that the results should be treated with caution.

Applicability of test result

The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimens of the product in the form in which they were tested. Small differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product which is supplied or used is fully represented by the specimens which were tested.

Validity

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

Table 1

Laboratory Record Sheet

FIRE PROPAGATION TEST - BS476:PART 6:1989+A1:2009

Specimen No. : 1 **Date : 21-Nov-13**

Time mins t	Specimen Temperature Deg C Ts	Calibration Temperature Deg C Tc	Ts- Tc/10t	Sub Index Of Performance
0.50	**12**	**12**	**0.00**	
1.00	**16**	**18**	**0.00**	
1.50	**21**	**22**	**0.00**	
2.00	**24**	**26**	**0.00**	
2.50	**28**	**31**	**0.00**	
3.00	**33**	**34**	**0.00**	**0.00**
4.00	**62**	**65**	**0.00**	
5.00	**93**	**100**	**0.00**	
6.00	**117**	**128**	**0.00**	
7.00	**136**	**150**	**0.00**	
8.00	**155**	**167**	**0.00**	
9.00	**169**	**184**	**0.00**	
10.00	**182**	**194**	**0.00**	**0.00**
12.00	**202**	**213**	**0.00**	
14.00	**214**	**225**	**0.00**	
16.00	**224**	**234**	**0.00**	
18.00	**232**	**241**	**0.00**	
20.00	**240**	**248**	**0.00**	**0.00**
Total Index of Performance S			**=**	**0.00**

SubIndex s1 **0.00**

SubIndex s2 **0.00**

SubIndex s3 **0.00**

Index of Performance S **0.00**

Table 2

Laboratory Record Sheet

FIRE PROPAGATION TEST - BS476:PART 6:1989+A1:2009

Specimen No. : 2 **Date : 21-Nov-13**

Time mins t	Specimen Temperature Deg C Ts	Calibration Temperature Deg C Tc	Ts-Tc/10t	Sub Index Of Performance
0.50	12	12	0.00	
1.00	17	18	0.00	
1.50	20	22	0.00	
2.00	24	26	0.00	
2.50	29	31	0.00	
3.00	33	34	0.00	0.00
4.00	63	65	0.00	
5.00	92	100	0.00	
6.00	117	128	0.00	
7.00	136	150	0.00	
8.00	155	167	0.00	
9.00	169	184	0.00	
10.00	181	194	0.00	0.00
12.00	200	213	0.00	
14.00	212	225	0.00	
16.00	222	234	0.00	
18.00	233	241	0.00	
20.00	238	248	0.00	0.00
Total Index of Performance S			**=**	**0.00**

SubIndex s1 **0.00**

SubIndex s2 **0.00**

SubIndex s3 **0.00**

Index of Performance S **0.00**

Table 3

Laboratory Record Sheet

FIRE PROPAGATION TEST - BS476:PART 6:1989+A1:2009

Specimen No. : 3 **Date : 22-Nov-13**

Time mins t	Specimen Temperature Deg C Ts	Calibration Temperature Deg C Tc	Ts-Tc/10t	Sub Index Of Performance
0.50	12	12	0.00	
1.00	16	18	0.00	
1.50	21	22	0.00	
2.00	25	26	0.00	
2.50	29	31	0.00	
3.00	33	34	0.00	0.00
4.00	65	65	0.00	
5.00	94	100	0.00	
6.00	117	128	0.00	
7.00	141	150	0.00	
8.00	155	167	0.00	
9.00	172	184	0.00	
10.00	181	194	0.00	0.00
12.00	199	213	0.00	
14.00	212	225	0.00	
16.00	226	234	0.00	
18.00	233	241	0.00	
20.00	239	248	0.00	0.00
Total Index of Performance S			**=**	**0.00**

SubIndex s1 **0.00**

SubIndex s2 **0.00**

SubIndex s3 **0.00**

Index of Performance S **0.00**

Revision History

Issue No :	Re-issue Date:
Revised By:	Approved By:
Reason for Revision:	

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